



Department of Commerce

Safety & Buildings Division

201 West Washington Avenue

P.O. Box 2658

Madison, WI 53701-2658

Evaluation # 200253-N (Replaces 990038-N)

## Wisconsin Building Products Evaluation

Material

16- & 20-Gauge Woodclaw Truss Plate

Manufacturer

Jack Walters & Sons Corporation  
6600 Midland Court  
Allenton, Wisconsin 53002

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### SCOPE OF EVALUATION

**GENERAL:** This report evaluates the use of 16- and 20-gauge Woodclaw metal truss plate connectors, manufactured by Jack Walters & Sons Corporation.

This review includes the cited **Comm** code requirements below in accordance with the current **Wisconsin Uniform Dwelling Code (UDC), for 1- and 2-family dwellings:**

- **Allowable Stress Design:** The 16- and 20-gauge Woodclaw metal truss plate connectors were evaluated for use within allowable design values in accordance with **s. Comm 21.02(3)** and standards adopted under **s. Comm 20.24 (6)**.

This review includes the cited **International Building Code (IBC)** requirements below in accordance with the current **Wisconsin Code** for commercial and multi-family dwellings:

- **Allowable Stress Design:** The 16- and 20-gauge Woodclaw metal truss plate connectors were evaluated for use within allowable design values in accordance with **s. IBC 2306.1** and **s. IBC 2308.10.7.1**

### DESCRIPTION AND USE

The Woodclaw truss plates, fabricated from 16- and 20-gauge galvanized steel, have four 9/32-inch angular teeth formed perpendicular to the plate, in the corners of one-half inch square perforated slot located diagonally one inch on centers which result in 4 teeth plug per square inch of plate.

## **TESTS AND RESULTS**

The tests and results below are in accordance with both the **Wisconsin Uniform Dwelling Code (UDC)**, and the **Wisconsin Code** for commercial and multi-family dwellings:

Tests were conducted to evaluate the lateral resistance design values of the 16- & 20-gauge metal plate connectors for two different species of wood: Southern Yellow and Spruce Pine Fir, in accordance with the ANSI/TPI-95. The Gross Area Method described in ANSI/TPI-95 was used to determine the plate holding values.

### **Lateral Resistance Design Capacities**

Connector Plate ID	Average Lateral Resistance Design Value (psi/plate)			
	Southern Yellow Pine		Spruce Pine Fir	
	AA/EA	AE/EE	AA/EA	AE/EE
20-Ga Woodclaw	155.7	133.2	92.3	77.3
16-Ga Woodclaw	127.4	131.7	73.4	89.9

The lateral resistance values must be reduced by the percentage listed in TPI-95, Design Specifications for Metal Plate Connected Wood Trusses (section 5.11.1.3), at various joint locations and in accordance with good engineering practices as may be necessitated by minimum plate size and handling and shipping procedures.

### **Tension Tests:**

Orientation	16-gauge Plate	20-gauge Plate
Load // Slot (0°)	931 pli	547 pli
Load ⊥ Slot (90°)	931 pli	547 pli

### **Shear Tests:**

Slot Orientation	16-gauge Plate	20-gauge Plate
0°	472 pli	375 pli
30°	544 pli	329 pli
60°	656 pli	405 pli
90°	472 pli	375 pli
120°	402 pli	297 pli
150°	314 pli	222 pli

## **LIMITATIONS OF APPROVAL**

The limitations below are in accordance with both the **Wisconsin Uniform Dwelling Code (UDC)**, and the **Wisconsin Code** for commercial and multi-family dwellings or as noted:

This approval is for the allowable design values of the connector plates only and not an approval for a truss or joist or a construction design. See **TESTS AND RESULTS** section above for the allowable design values.

The connector plates have been designed in accordance with the procedures established by the Truss Plate Institute and the design specifications for light metal plate connected trusses. Truss designs must be made according to the specifications of the T.P.I.

The connector plates may be used to construct trusses in accordance with **ss. Comm 21.22 (2), 21.28 (5)** of the **Wisconsin Uniform Dwelling Code (UDC)**, and **s. IBC 2306.1** of the **Wisconsin Amended IBC 2000 Code**.

The plates shall be identified with the manufacturer's name and as follows:

16- or 20-gauge plate: Woodclaw

The use of the 16- & 20-gauge connectors with pressure or fire retardant treated lumber is beyond the scope of this approval.

### **INFORMATION REQUIRED ON PLANS SUBMITTED**

#### **TRUSS PLAN SUBMITTAL REQUIREMENTS:**

The approval number as well as the following information must be made a part of all truss plan submittals so that unnecessary delays will not result because of the lack of proper information.

1. Acceptable Unit Stresses. The allowable unit stresses published in the National Design Specifications For Wood Construction, including Design Values for Wood Construction, supplement to the Edition of the National Design Specification for Wood Construction, as recommended by the National Forest Products Association and its Supplement, shall be used to determine allowable unit stresses.
2. An increase in allowable bending stress due to repetitive member use is acceptable as listed in NDS Table 1 Supplement.
3. Moment coefficients used in design of top or bottom chord members shall be based on the assumption of no fixity at member end or joints due to plate connectors. Moment coefficients listed in ANSI/TPI-95 with appropriate panel length adjustment factors are to be used in the design of the trusses.
4. The cumulative effects of short-time loads, such as snow, shall be considered in determining the duration of the load. For snow load, no greater duration of load factor than 1.15 shall be used.
5. The metal plate connector must be properly identified on the plans. The gauge of metal plate and its design capacity (in pounds per nail or pounds per square inch) must be shown on the plans. Light gauge perforated metal plate connectors shall be permanently identified with regard to their gauge and manufacturer. If a manufacturer's code is used to identify the plates, the code shall be explained on the plans. The design and use of metal plate connectors shall be in accordance with the requirements of **s. IBC 2306.1**.
6. Drawings must be provided for all joints and splices (duplication of identical joints is not necessary). The drawings must clearly indicate the contributory number of nails or square inches of plate area required on each member of each joint.
7. A stress diagram (to scale or a function of "L") must be shown on the plans. An acceptable alternate would be to provide calculations using other methods of determining axial loads. Calculations may be placed on computer output sheets only if computer programs are provided with adequate explanation on request to the satisfaction of the department.
8. Calculations must be provided which analyze the combined effects of axial loads and bending moments on top and bottom cord members.
9. A framing plan must accompany the truss plans when several different trusses, bearing conditions and elevation changes occur.
10. All wood trusses shall be securely fastened to the supports and each truss shall be secured in position in accordance with National Design Specifications, Appendix A, Section A-10.

11. A title block must be provided on all submittals indicating the name of the owner, exact address of building and location of building. If there are several building on a lot, the trusses must be properly identified for location (this is not necessary for identical trusses).
12. All truss plans for buildings over 50,000 cubic feet in volume must be sealed or stamped and signed by an architect or professional engineer registered in Wisconsin. The intent is to have each sheet stamped, signed and dated by the engineer or architect responsible for the trusses. If the building designer is different than the truss designer the truss plans shall be submitted by the building designer with their initials, and a statement on the truss plans that, they are acceptable.
13. Wood trusses shall be designed and constructed in accordance with the National Design Standard For Metal Plate Connected Wood Truss Construction published by the Truss Plate Institute (ANSI/TPI-95) with listed exceptions as outlined above and stated in **s. IBC 2306.1**.
14. An examination fee per **s. Comm 2.31** may be required for each building submittal.

Any other information required by **s. Comm 61.31** shall also be submitted.

This approval will be valid through December 31, 2007, unless manufacturing modifications are made to the product or a re-examination is deemed necessary by the department. The Wisconsin Building Product Evaluation number must be provided when plans that include this product are submitted for review.

#### **DISCLAIMER**

The department is in no way endorsing or advertising this product. This approval addresses only the specified applications for the product and does not waive any code requirement not specified in this document.

Revision Date:

Approval Date: January 22, 2003 By: \_\_\_\_\_

Lee E. Finley, Jr.  
Product & Material Review  
Integrated Services Bureau